

DRAFT RULE 322 – April 18, 2002
For Public Workshop on 5/2/02
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Comments due on 5/17/02

REGULATION III - CONTROL OF AIR CONTAMINANTS

NEW RULE 322 POWER PLANT OPERATIONS

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**MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS**

REGULATION III - CONTROL OF AIR CONTAMINANTS

**RULE 322
POWER PLANT OPERATIONS**

SECTION 100 – GENERAL

101 PURPOSE: To limit the discharge of nitrogen oxides, sulfur oxides, particulate matter and carbon monoxide emissions into the atmosphere from stationary fossil-fuel-fired equipment at existing power plants ~~perations and~~ existing cogeneration plants and to limit particulate matter emissions from cooling towers associated with this equipment.

102 APPLICABILITY: This rule applies to any of the following types of equipment that burn fossil fuel for which construction commenced prior to May 10, 1996:

102.1 Each electric utility steam generating unit or cogeneration steam generating unit used to generate electric power that has a heat input of equal to or greater than 100 million (MM) Btu/hour (29 megawatts (MW)).

~~**102.2** Each electric utility combined cycle gas turbine that is capable of combusting more than 100 MM Btu/hour heat input of fossil fuel in the steam generating unit. Only emissions resulting from combustion of fuels in the steam generating unit of the combined cycle unit or from the duct burner of the combined cycle unit that is not associated with the gas turbine part of the unit are the applicable emissions associated with this subsection 102.2. The gas turbine emissions associated with the combined cycle unit are addressed in subsection 102.3.~~

102.2 Each electric utility stationary simple cycle gas turbine with a heat input at peak load equal to or greater than 10 MMBtu/hour (2.9 MW) based upon the lower heating value of the fuel. and also to each gas turbine part of a combined cycle unit in a combined cycle unit capable of combusting more than 100 MM Btu/hr. heat input.

~~**102.3** Each cooling tower associated with the type of equipment listed in subsections 102.1 and 102.2 and 102.3.~~

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103 EXEMPTIONS: ~~The provisions in~~ this rule shall not apply to the following types of equipment:

103.1 Combustion equipment associated with nuclear power plant operations.

103.2 Reciprocating internal combustion equipment

104 PARTIAL EXEMPTIONS:

104.1 ~~Simple~~ Stationary-cycle gas turbines that meet any of the following criteria listed below are exempt from Sections 304 and 305 and subsections 301.1, ~~306.3~~, ~~306.4b~~, ~~306.7.4~~, ~~401.43~~, and ~~501.45~~ of this rule:

~~a.~~ a. ~~Used as for~~ fire fighting, ~~gas turbines~~

~~b.~~ b. ~~and gas turbines~~ Used for flood control.

~~b-c.~~ c. Used in the military at military training facilities or military gas turbines for use in other than a garrison.

~~c-d.~~ d. Engaged by manufacturers in research and development of equipment for either gas turbine emission control techniques or gas turbine efficiency improvements.

104.2 ~~All applicable fossil fuel fired~~ equipment listed in Section 102 fired with an emergency fuel that is normally fired with natural gas is exempt from Sections 304 and 305 and subsections 301.1, ~~306.2~~, ~~306.3~~, ~~306.4b~~, ~~306.7.4~~, ~~401.43~~, and ~~501.45~~ of this rule.

104.3 An owner or operator of a unit that uses emergency fuel shall notify the Control Officer verbally no later than 48 hours after declaration of the emergency that necessitates the use of emergency fuel. This notification shall include the date and time of emergency fuel firing, the equipment affected and the quantity of emergency fuel used.

104.4 ~~All applicable fossil fuel fired~~ equipment listed in Section 102 shall be exempt from Sections 304 and 305 and subsections 301.1, ~~306.2~~, ~~306.3~~, ~~306.4b~~, ~~306.7.4~~, ~~401.43~~, and ~~501.45~~ of this rule for 36 cumulative hrs. ~~twelve (12) hours of burn~~ firing emergency fuel per year, per unit for testing, reliability and maintenance purposes.

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SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply: See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.

- 201 COGENERATION STEAM GENERATING UNIT** – A steam or hot water generating unit that simultaneously produces both electrical (or mechanical) and thermal energy (such as heat or steam) from the same primary energy source and supplies more than one-third of its potential electric output to any utility power distribution system for sale.
- 202 COMBINED CYCLE GAS TURBINE** – A type of stationary gas turbine ~~combustion system wherein~~ heat from the turbine exhaust is recovered by a steam generating unit to make steam for use in a steam-electric turbine.
- 203 CONTINUOUS EMISSION MONITORING SYSTEM (CEMS)** – The total equipment required to sample and analyze emissions or process parameters such as opacity, nitrogen oxide and oxygen or carbon dioxide, and to provide a permanent data record.
- 204 COOLING TOWERS** – Open water recirculating devices that use fans or natural draft to draw or force air through the device to cool water by evaporation and direct contact.
- 205 CORRECTIVE ACTION PLAN (CAP)-** A methodical procedure that is used to evaluate and correct a turbine operational problem and that includes, at a minimum, improved preventative maintenance procedures, improved ECS operating practices, possible operational changes and progress reports.
- 206 DISTILLATE OIL** – A petroleum fraction of fuel oil produced by distillation that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-7801, “Standard Specification for Fuel Oils.”
- 207 DRIFT** – Water droplets, bubbles, and particulate matter that escape from cooling tower stacks.
- 208 DRIFT RATE** – Percentage (%) of circulating water ~~loss~~flow rate -that passes through a high efficiency drift eliminator on a cooling tower.
- 208 DUCT BURNER** – ~~A device that combusts fuel and that is placed in the exhaust duct from another unit such as a gas turbine or internal combustion engine to~~

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~~allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a heat recovery steam generating unit.~~

- 209 ELECTRIC UTILITY STATIONARY GAS TURBINE** – Any stationary gas turbine that is constructed for the purpose of supplying more than one-third of its potential electric output capacity to any utility power distribution system for sale. Both simple and combined cycle gas turbines are types of electric utility stationary gas turbine.
- 210 ELECTRIC UTILITY STEAM GENERATING UNIT** – Any steam electric generating unit that uses fossil fuel and is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 megawatts (MW) electric output to any utility power distribution system for sale.
- 211 EMERGENCY FUEL** - Fuel fired only during circumstances such as natural gas emergency, natural gas curtailment, or breakdown of delivery system such as an unavoidable interruption of supply that makes it impossible to fire natural gas in the unit.
- 2122 EMISSION CONTROL SYSTEM (ECS)** – A system approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions.
- 213 ~~EXISTING POWER PLANT OPERATION~~** – ~~An operation whose purpose is to supply more than one third of its potential electric output capacity to any utility power distribution system for sale and which has been issued a permit for which construction has commenced prior to May 10, 1996.~~
- 213 213 FOSSIL FUEL** – Naturally occurring carbonaceous substances from the ground such as natural gas, petroleum, coal and any form of solid, liquid, or gaseous fuel derived from such material for the purpose of creating energy.
- 214 FUEL SWITCHING** – The act of changing from one type of fuel to a different type of fuel.
- 2154 HEAT INPUT** – Heat derived from the combustion of fuel ~~in a steam generating unit and does not include~~ the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines and kilns.

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- 2165 HIGH EFFICIENCY DRIFT ELIMINATOR (HEDE)** – Device used to remove liquid droplets and particulate matter drift from cooling tower exhaust air, thus reducing water loss by relying on rapid changes in velocity and direction of air-droplet mixtures by impaction on eliminator passage surfaces. A HEDE is not considered categorized as an emission control system but is an inherent part of the cooling towers' design requirements.
- 2176 HIGHER HEATING VALUE (HHV) or GROSS HEATING VALUE** – The amount of heat measured energy released when fuel and dry air at standard conditions undergo complete combustion and all resulting products are brought to their standard states at standard conditions produced by the complete combustion of a unit quantity of fuel determined by a calorimeter wherein the combustion products are cooled to the temperature existing before combustion and all of the water vapor is condensed to liquid.
- 2187 LOW SULFUR OIL** – Fuel oil containing less than or equal to 0.05 ~~percent (%)~~ by weight of sulfur.
- 219 LOWER HEATING VALUE (LHV) OR NET HEATING VALUE** – The amount of heat produced by the complete combustion of a unit quantity of fuel determined by a calorimeter wherein the combustion products are cooled to the temperature existing before combustion and all of the water vapor remains as vapor and is not condensed to a liquid. The value is computed from the higher heating value by subtracting the water originally present as moisture and the water formed by combustion of the fuel.
- 220 NATURAL GAS CURTAILMENT** - An interruption in natural gas service, such that the daily fuel needs of a combustion unit cannot be met with natural gas available due to one of the following reasons:
- a. An unforeseeable failure or malfunction, not resulting from an intentional act or omission that the governing state, federal or local agency finds to be due to an act of gross negligence on the part of the owner or operator; or
 - b. A natural disaster; or
 - c. The natural gas is curtailed pursuant to governing state, federal or local agency rules or orders; or
 - d. The serving natural gas supplier provides notice to the Control Officer that, with forecasted natural gas supplies and demands, natural gas

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service is expected to be curtailed pursuant to governing state, federal
or local agency rules or orders.

- 2210 NITROGEN OXIDES (NO_x)** – Oxides of nitrogen calculated as equivalent nitrogen dioxide.
- 2224 OPACITY** – A condition of the ambient air, or any part thereof, in which an air contaminant partially or wholly obscures the view of an observer.
- 2213 PARTICULATE MATTER (PM)** – ~~Any material, except condensed water containing no more than analytical trace amounts of other chemical elements or compounds, which has a nominal aerodynamic diameter smaller than 100 microns (micrometers), and which exists in a finely divided form as a liquid or solid at actual conditions.~~
- 223 PARTICULATE MATTER EMISSIONS** – Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.
- 224 PEAK LOAD** – 100% of the manufacturer's design capacity of a gas turbine at 288° Kelvin, 60% relative humidity, and 101.3 kilopascals pressure (ISO standard day conditions).
- 225 POWER PLANT OPERATION** – An operation whose purpose is to supply more than one-third of its potential electric output capacity to any utility power distribution system for sale.
- 226 RATED HEAT INPUT CAPACITY** – The heat input capacity in million Btu/hr. a specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different than the heat input capacity on the name plate, the maximum heat input shall be considered the rated heat input capacity.
- 227 REGENERATIVE CYCLE GAS TURBINE** – Any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustion unit.
- 2268 RESIDUAL OIL** – The heavier oils that remain after the distillate oils and lighter hydrocarbons are distilled off in refinery operations. This includes crude oil or fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05 percent-% by weight, and all fuel oil numbers 4, 5 and 6, as defined by the American Society of Testing and Materials in ASTM D396-78801, "Standard Specifications for Fuel Oils."

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~~227~~ **~~SELECTIVE CATALYTIC REDUCTION (SCR)~~** – A post combustion add-on control technique that involves injecting ammonia into the flue gas in the presence of a catalyst to reduce nitrogen oxides to nitrogen and water.

~~228~~ **~~SHUTDOWN~~** – The period of time during which an electric utility steam generating unit or stationary gas turbine is allowed to cool from its normal temperature range to a cold or ambient temperature by following a prescribed series of separate steps or operations which render the combustion unit inactive from an inactive status.

~~229~~ **~~SIMPLE CYCLE GAS TURBINE~~** – Any stationary gas turbine which that does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or which that does not recover heat from the gas turbine exhaust gases to heat water or generate steam.

~~230~~ **~~START-UP~~** – The period of time during which an electric utility steam generating unit or stationary gas turbine is heated up to its normal operating temperature range from a cold or ambient temperature by following a prescribed series of separate steps or operations which bring the unit up to a normal operating status from its inactive status.

230 **STARTUP** – The setting into operation of any process equipment and/or air pollution control equipment.

~~231~~ **~~STATIONARY GAS TURBINE~~** – Any simple cycle gas turbine, regenerative gas turbine or any gas turbine portion of a combined cycle gas turbine steam/electric generating unit that is not self propelled or that is attached to a foundation.

~~232~~ **~~SULFUR OXIDES (SOx)~~** – The sum of the oxides of sulfur emitted from the flue gas from a combustion unit that are directly dependent upon the amount of sulfur in the fuel used.

~~233~~ **~~THREE (3) HOUR TESTING AVERAGE~~** – A mean numerical value of.

~~233~~ **~~THIRTY DAY (30) ROLLING AVERAGE~~** – An arithmetic mean or average of all hourly emission rates for 30 successive combustion equipment operating days and calculated by a CEMS every hour.

~~234~~ **~~THREE (3) HOUR ROLLING AVERAGE~~** – An arithmetic mean or average of the 180 most recent 1-minute average values calculated by a CEMS every minute.

~~235~~ **~~TOTAL DISSOLVED SOLIDS (TDS)~~** – The amount of concentrated matter reported in milligrams/liter (mg/l) or parts per million (ppm) left after filtration of a

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well-mixed sample through a standard glass fiber filter. The filtrate is evaporated to dryness in a weighed dish and dried to constant weight at 180° C and the increase in dish weight represents the total dissolved solids.

- 236 UNCOMBINED WATER** – Condensed water containing no more than analytical amounts of other chemical elements or compounds.

SECTION 300 – STANDARDS

301 LIMITATIONS – PARTICULATE MATTER:

~~301.1~~**301. FUEL TYPE:** An owner or operator of any combustion equipment listed in Section 102 shall burn only natural gas except when firing emergency fuel per subsection 104.2 and 104.34 of this rule. An owner or operator may burn a fuel other than natural gas for non-emergency purposes providing that the fuel shall not cause to be discharged more than 0.007 lbs. of particulate matter per million MMBtu heat input of particulate matter demonstrated and documented through performance testing of this alternate fuel. This usage of different fuels other than natural gas shall be approved by the Control Officer prior to usage.

~~301.2~~**301.2 GOOD COMBUSTION PRACTICES:** An owner or operator of any simple or combined cycle gas stationary gas turbine listed in subsection 102.2 and 102.3 of this rule, regardless of fuel type, shall use operational practices recommended by the manufacturer and parametric monitoring that ensure good combustion control. In lieu of a manufacturers' recommended procedure to ensure good combustion practices, one of the following procedures may be used:

a. In both simple and combined cycle gas turbines this consists of monitoring the maximum temperature differential across the combustion burners or at locations around the back end of the turbine, dependent upon the particular unit, to ensure no more than a 100°F difference using a thermocouple. If a valid maximum temperature differential of greater than 100°F is observed across the burners, investigation and corrective action shall be taken within three hours to either reduce the output of the units until the temperature difference is to less than 100°F or less or shut down the unit until the problem causing the temperature imbalance is corrected or

b. If the manufacturer recommends that the maximum numerical temperature differential to ensure good combustion is a temperature that is greater than 100°F, then proof of this maximum alternate temperature

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shall be submitted to the Control Officer. The procedure to measure the maximum temperature differential listed above in subsection 301.2a shall then be followed using the alternate recommended maximum temperature differential after approval by the Control Officer.

c. If the frequency of failure to meet the proper temperature differential of 100°F or to meet the alternate temperature differential recommended by the manufacturer indicates that the turbine is not being operated in a manner consistent with good combustion practices, then the Control Officer may require the owner or operator to submit a Corrective Action Plan (CAP).

301.3301.35 Cooling Towers: An owner or operator of a cooling tower cooling tower-associated with applicable units listed in Section 102 shall be:

- a. Equipped the cooling tower with a high efficiency drift eliminator (HEDE). The high efficiency drift eliminator HEDE shall be designed with a drift rate of no more than 0.001% and shall not be manufactured out of wood. The maximum allowable Total Dissolved Solids (TDS) concentration of the water used in the tower shall be 20,000 ppm; and
- b. Visually inspect the HEED for integrity on a monthly basis only if the HEDE can be viewed safely and does not require an owner or operator to walk into the tower. If the HEED cannot be safely inspected monthly then subsection 301.5 c shall apply:
- c. Visually inspect the HEED for integrity at least once per year during the regularly scheduled outage when the cooling tower is not operating if it cannot be inspected on a monthly basis.

302 LIMITATIONS – OPACITY:

302.1 No person shall discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 20% opacity except as provided in subsection 302.2. (note–The justification for this exemption in subsection 302.2 is still under development).

302.2 Opacity may exceed the applicable limits established in subsection 302.1 for up to one hour during the start up of switching fuels; however, opacity shall not exceed 40 % for any six (6) minute averaging period in this one hour period, provided the Control Officer finds that the owner or operator has, to the extent practicable, maintained and operated the source of

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emissions in a manner consistent with good air pollution control practices for minimizing emissions. The one hour period shall begin at the moment of startup of fuel switching.

302.3 Determination of whether good air pollution control practices are being used shall be based on information provided to the Control Officer upon request, which may include, but is not limited to, the following:

- a. Monitoring results.
- b. Opacity observations.
- c. Review of operating and maintenance procedures.
- d. Inspection of the source.

303 LIMITATIONS - SULFUR IN FUEL: ~~303.1 Fuel fired equipment that uses natural gas shall combust only pipeline quality natural gas with a maximum total sulfur content of 0.0075 grains per dry standard cubic foot (g/dscf).~~ **303.2** An owner or operator of any applicable equipment listed in Section 102 that burns fuel oil as emergency fuel or a combination of fuel oil with any other fuel as emergency fuel with a resulting discharge of sulfur oxide(s) in the facility's effluent gases shall use only low sulfur oil with one exception. Existing supplies in storage of any fuel oil and/or of any used fuel oil with sulfur content greater than 0.05% by weight may be used by the owner or operator until (1.5 years after adoption of rule) for emergency fuel. This usage shall be reported to the Control Officer, along with the dates of usage within 48 hrs. of usage.

304 304—LIMITATIONS – NITROGEN OXIDES: No owner or operator of any applicable equipment listed in subsection 102.1 which that commenced construction or a major modification after May 30, 1972 shall cause to be discharged into the atmosphere any gases with nitrogen oxides in excess of the following limits:

304.1 0.20 lb. NO_x per MMBtu (154 ppmv) heat input, calculated as nitrogen dioxide derived from when burning gaseous fossil fuel, maximum three hour average calculated as nitrogen dioxide. During steady state operations, this test result using EPA Reference Method(s)7, shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. If a Continuous Emission Monitoring System (CEMS) is used, the test result shall be based upon a 30-day rolling average. a one-clock-hour averaging period based upon data obtained from Continuous Emission Monitoring Systems (CEMS), if applicable

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304.2 0.30 lb. NO_x per MMBtu (230 ppmv) derived from calculated as nitrogen dioxide when burning liquid fossil fuel,; maximum three hour average
During steady state operations, this test result using EPA Reference Method(s)7, shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. If a CEMS is used, the test result shall be based upon a 30-day rolling average.

305 **LIMITATIONS - CARBON MONOXIDE:** No owner or operator of any applicable fossil fuel fired equipment listed in Section 102 of this rule shall cause to be discharged into the atmosphere exceed 400 ppmv of carbon monoxide (CO) measured in excess of 400 ppmv measured during steady state compliance source testing. -This test result, using EPA Reference Method 10, shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. During normal operation (CEMS compliance monitoring, if required) the carbon monoxide shall not exceed 1000 ppmv based upon a 3 hr. average, or 1000 ppmv based upon a 1 hr verage data obtained from a CEMS, if applicable. based upon a 3 hour rolling average. TThe CO concentration shall be measured dry and corrected to 3% oxygen for both electric utility steam generating units and cogeneration steam generating units, and The CO concentration shall be measured dry and corrected to 15% oxygen for measured dry, corrected to 15% oxygen for simple and combined cycle stationary gas turbines.

306 **EXCEPTIONS TO STANDARDS:**

306.1 **Opacity:**

a. Start-up and Shutdown of Electric Utility Steam Generating Unit or Cogeneration Unit: During the period of time when an electric utility steam generating unit or cogeneration unit is either heated up to its normal temperature from a cold or ambient temperature or heated from a standby mode (hot start) or allowed to cool from its normal temperature range to a cold or ambient temperature, visible emissions exceeding the opacity standards in Section 302 for three minutes resulting from start-up or shutdown shall be allowed provided that the Control Officer finds that it is technically infeasible to meet emission limitations and that adequate control technology has been applied. At no time during these exceptions shall the opacity of any plume or effluent from any of these combustion units, other than uncombined water, ever exceed 40%.

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- b. ~~Start-up and Shutdown of Simple Gas Turbines and Combined Cycle Gas Turbines:~~** During the period of time when the turbine is operating at equal to or less than a specified percentage of the unit's rated nameplate capacity and/or when the catalyst inlet temperature of the Selective Catalytic Reduction System (SCR), if applicable, is below a specified temperature, visible emissions exceeding the opacity standards in Section 302 for three minutes resulting from start-up or shutdown shall be allowed provided that the Control Officer finds that it is technically infeasible to meet emission limitations and that adequate control technology has been applied. At no time during these exceptions shall the opacity of any plume or effluent from any of these combustion units, other than uncombined water, ever exceed 40%. The specified percentage and temperature values are recommended by the manufacturer for the particular unit in question.

306.2 ~~Nitrogen Oxides and Carbon Monoxide – Start-up and Shutdown of Electric Utility Steam Generating Unit or Cogeneration Unit:~~ During the period of time when an electric utility steam generating unit or cogeneration unit is either heated up to its normal temperature from a cold or ambient temperature or heated from a standby mode (hot start) or allowed to cool from its normal temperature range to a cold or ambient temperature, nitrogen oxide and carbon monoxide emissions exceeding the standards in Sections 304 and 305 resulting from start-up or shutdown shall be allowed provided that the Control Officer finds that it is technically infeasible to meet emission limitations and that adequate control technology has been applied. The duration of each start-up procedure shall not exceed 12 hours and the duration of each shutdown procedure shall not exceed eight 8 hours.

306.3 ~~Carbon Monoxide – Start-up and Shutdown of Gas Turbines and Combined Cycle Gas Turbines:~~ During the start-up and shutdown procedures detailed below, a gas turbine or a combined cycle gas turbine may exceed the carbon monoxide standards as listed in Section 305 as follows:

- a. ~~For start-up, this period of time consists of two phases: a first phase consisting of bringing the combustion turbine up to a minimum of a specified percentage of rated power output and spanning approximately one hour, and a second phase consisting of warming the SCR unit in the associated heat recovery steam~~**

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~~generator unit, if applicable, up to a specified temperature that will support a catalytic reaction between ammonia and oxides of nitrogen and spanning up to approximately an additional two hours.~~

- ~~b. For shutdown, this period of time is defined as when the turbine is operating at equal to or less than the specified percentage of its rated nameplate capacity and /or when the catalyst temperature of the SCR system, if applicable, is below a specified temperature, excluding periods of malfunction. Shutdown consists of a period of approximately 30 minutes to bring the combustion turbine down from this percentage of rated power to the cessation of fuel firing in an orderly fashion.~~

306.2 Fuel Switching:

~~**306.2 Opacity:** During the period of time when an owner or operator switches from either natural gas to emergency fuel or from emergency fuel to natural gas in any of the applicable combustion units listed in Section 102, visible emissions exceeding the opacity standards in Section 302 for three minutes shall be allowed provided that the Control Officer finds that it is technically infeasible to meet emission limitations and that adequate technology has been applied. At no time during these exceptions shall the opacity of any plume or effluent from any of these combustion units, other than uncombined water, ever exceed 40%.~~

- ~~**b. Nitrogen Oxides and Carbon Monoxide:** During the period of time when an owner or operator switches from either natural gas to emergency fuel or from emergency fuel to natural gas in any of the applicable combustion units listed in Section 102, nitrogen oxide and carbon monoxide emissions exceeding the standards in Sections 304 and 305, if applicable, shall be allowed provided that the Control Officer finds that it is technically infeasible to meet emission limitations and that adequate control technology has been applied. The duration of time allowed for the exception to the nitrogen oxides and carbon monoxide emission limitations when switching fuels shall not exceed one hour.~~

306.7 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT:

306.7.1 Emission Control System Required: For affected operations which may exceed any of the applicable standards set forth in Section 300 of this

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rule, an owner or operator may comply by installing and operating an emission control system (ECS).

3067.2 Providing and Maintaining ECS Monitoring Devices: No owner or operator required to use an approved ECS to ~~control particulate emissions~~ pursuant to this rule shall do so without first properly installing, operating, and maintaining in calibration and in good working order, devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained as described in an approved O&M Plan.

3067.3 Operation and Maintenance (O&M) Plan Required For ECS:

a. General Requirements: An owner or operator shall provide and maintain an O&M Plan for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or to an air pollution permit.

b. Approval by Control Officer: ~~The~~ An owner or operator shall submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used pursuant to this rule.

c. Initial Plans: An owner or operator that is required to have an O&M Plan pursuant to this rule ~~must~~ shall fully comply with all O&M Plans that the owner or operator has submitted for approval, but which have not yet been approved, unless notified by the Control Officer in writing. Once the initial plan has been approved in writing by the Control Officer, an owner or operator shall then comply with the approved plan.

d. Revisions to Plan: If revisions to the initial plan have been approved by the Control Officer in writing, an owner or operator shall comply with the revisions to the initial plan.

e. Control Officer Modifications to Plan: After discussion with the owner or operator, the Control Officer may modify the plan in writing prior to approval of the initial O&M plan. An owner or operator shall then comply with the plan that has been modified by the Control Officer.

3067.4 Continuous Emission Monitoring Systems (CEMS):

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- a. ~~An~~The owner or operator of a combustion unit subject to Section 304 with a heat input of greater than 250 MMBtu/hr, regardless of fuel type, shall install, calibrate, maintain, and operate a CEMS and record the output of the system for measuring nitrogen oxides and recording the output of the system. Where nitrogen oxide emissions are monitored by a CEMS, then a CEMS shall also be required for the measurement of either the oxygen or carbon dioxide content of the flue gases. All CEMS shall comply with the provisions in 40 CFR Subpart Da, Part 60, 60.47 (a).
- b. ~~An~~The owner or operator of any affected unit listed above that requires a CEMS for nitrogen oxides that already meets and is continuing to meet the requirements of 40 CFR Part 75 and is continuing to meet the requirements of Part 75 and the CEMS has been already approved by the Control Officer, may use that CEMS to meet the requirements of subsection 3067.4a of this rule.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE

- 401.1 Operation and Maintenance (O&M) Plan:** Any owner or operator employing an approved ~~emission control system~~ ECS on the effective date of this rule shall by (insert 8 mos. after rule is adopted) file an O&M Plan with the Control Officer in accordance with subsection 3067.3 of this rule.
- 401.2 Modifications to Existing ECS:** Any owner or operator required to modify their ECS equipment or system by either reconstructing or adding on new equipment for compliance with this rule shall by (insert ~~86~~ months after rule is adopted) file a schedule for the modification with the Control Officer. The plan shall show how the ECS is to be used to achieve full compliance and shall specify dates for completing increments of progress. Any and all ECS(s) used to achieve such compliance shall be in operation by (insert 306 months after date of adoption of rule).
- 401.3 ECS Installation:** An owner or operator required to install an new ECS to satisfy the requirements of this rule shall file a schedule for the installation of an ECS by (insert 8 months after the rule is adopted). The plan shall show how the ECS is to be used to achieve full compliance and shall specify dates for completing increments of progress. Any and all ECS(s) used to achieve such compliance shall be in operation by (insert 36 months after adoption of rule)

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401.4 CEMS Installation: An owner or operator required to install or modify a CEMS to satisfy the requirements of this rule shall file a schedule for the installation or modification of the CEMS by (insert 8 months after the rule is adopted) and complete the installation of the CEMS by (insert 36 months after date of adoption of rule).

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Any owner or operator subject to this rule shall comply with the requirements set forth in this section. Any records and data required by this section shall be kept on site at all times in a consistent and complete manner and be made available without delay to the Control Officer or his designee upon request. Records shall consist of the following information:

501.1 ~~Applicable~~ Equipment Listed in Section 102: Type of fuel used, amount of fuel used, amount of sulfur in the fuel if using liquid fuel, and the days and hours of operation.

501.2 Cooling Towers: Monthly gravimetric testing reports for TDS and results of the monthly or yearly visual inspection of the HEDE. If the HEDE cannot be visually inspected monthly, then documentation of the physical configuration of the HEDE shall be submitted to the Control Officer to demonstrate that the HEDE cannot be inspected monthly.

501.3 ~~Start-up and Shutdown:~~ ~~Duration of start-up and/or shutdown mode, number of start-ups and shutdowns per year and date of start-up and shutdown.~~

501.4 ~~Emergency Fuel Usage:~~ ~~Actual~~Type of emergency fuel used, dates~~days and hours of operation using emergency fuel, nature of the emergency or purpose that caused the for the use of emergency fuel as stated in subsections 104.2, 104.3 and 104.4 and the amount of emergency fuel used. and monthly totals for twelve-month log of hours of operation for testing reliability and maintenance purposes in the emergency mode.~~

501.4 ~~5~~ CEMS: All CEMS measurements, results of CEMS performance evaluations, ~~all~~ CEMS calibration checks, and ~~all~~ adjustments and maintenance performed on these systems.

501.5 Good Combustion Practices: Measurements of the temperature differential across the burners of turbines per subsection 301.2, results of evaluation and of corrective action taken to reduce the temperature

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differential or a finding that the temperature differential returned to the range listed in subsection 301.2 a or b without any action by the owner or operator.

501.6 Fuel Switching: Date and time of fuel switch, reason for fuel switch, duration of fuel switch and type of fuel(s) switched.

502 RECORDS RETENTION: Copies of reports, logs, and supporting documentation required by the Control Officer shall be retained for at least 5 years. Records and information required by this rule shall also be retained for at least 5 years.

503 COMPLIANCE DETERMINATION:

503.1 Low Sulfur Oil Verification:

~~a.a.~~ An owner or operator shall submit fuel oil or liquid fuel receipts from the fuel supplier indicating the sulfur content of the fuel or verification that the oil used to generate electric power meets the 0.05% sulfur limit ~~—Federal Energy Regulatory Commission (FERC) standard shall be submitted to the Control Officer if proof of sulfur content of the oil—~~ if is requested by the Control Officer or

~~b.~~ If fuel receipts are not available, then an owner or operator shall submit a statement of certification or proof of the sulfur content of the oil or liquid fuel quality as pipeline quality oil from the supplier to the Control Officer ~~shall be sufficient for compliance. or~~

~~c.c.~~ An owner or operator may elect to test the fuel for sulfur content in lieu of certification from the fuel supplier or fuel receipts.

503.22 Drift Rate Verification: An owner or operator shall submit design drift rate verification from the manufacturer of the HEDE high efficiency drift eliminator used in the cooling towers associated with the applicable equipment listed in Section 102 shall be obtained from the manufacturer of the drift eliminator and supplied to the Control Officer if proof of the design drift rate is requested by the Control Officer.

504 TEST METHODS ADOPTED BY REFERENCE: The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2001), as listed below, are adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section are

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available at the Maricopa Environmental Services Department, 1001 N. Central Avenue, Phoenix, AZ 85004-1942. The ASTM methods (~~1971, 1978, 1996 and 1998 and 2000~~) and the Standard Methods listed below (1995) are also adopted by reference. When more than one test method as listed in subsections~~Section~~ 504.10 through 504.13 is permitted for the same determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation.

- 504.1** EPA Reference Methods 1 (“Sample and Velocity Traverses for Stationary Sources”), 1a (“Sample and Velocity Traverses for Stationary Sources with Small Stacks and Ducts”) (40 CFR 60, Appendix A).
- 504.2** EPA Reference Methods 2 (“Determination of Stack Gas Velocity and Volumetric Flow Rate”), 2A (“Direct Measurement of Gas Volume Through Pipes and Small Ducts”), 2C (“Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts”) and 2D (“Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts”) (40 CFR 60, Appendix A).
- 504.3** EPA Reference Method 3 (“Gas Analysis for the Determination of Dry Molecular Weight”), 3A (“Determination of Oxygen and Carbon Dioxide Concentrations in Emissions From Stationary Sources (Instrumental Analyzer Procedure)”), 3B (“Gas Analysis for the Determination of Emission Rate Correction Factor of Excess Air”), 3C (“Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources”) (40 CFR 60, Appendix A).
- 504.4** EPA Reference Method 4 (“Determination of Moisture Content in Stack Gases”) (40 CFR 60, Appendix A).
- 504.5** EPA Reference Method 5 (“Determination of Particulate Emissions from Stationary Sources”) (40 CFR 60, Appendix A) and possibly, if requested by the Control Officer, EPA Reference Method 202 (“Determination of Condensable Particulate Emissions from Stationary Sources”) (40 CFR 51, Appendix M).
- 504.6** EPA Reference Method 7 (“Determination of Nitrogen Oxide Emissions from Stationary Sources”), 7A (“Determination of Nitrogen Oxide Emissions from Stationary Sources”), 7B (“Determination of Nitrogen Oxide Emissions from Stationary Sources - Ultraviolet Spectrometry”), 7C (“Determination of Nitrogen Oxide Emissions from Stationary Sources - Alkaline-Permanganate Colorimetric Method”), 7D (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-

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Permanganate Chromatographic Method”), 7E (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Instrumental Analyzer Method”) (40 CFR 60, Appendix A).

504.7 EPA Reference Method 9 (“Visual Determination of the Opacity of Emissions from Stationary Sources”) (40 CFR 60, Appendix A).

504.8 EPA Reference Method 10 (“Determination of Carbon Monoxide Emissions from Stationary Sources”) (40 CFR 60, Appendix A).

504.9 EPA Reference Method 20 (“Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines”) (40 CFR 60, Appendix A).

504.10 American Society of Testing Materials, ASTM Method #D2622-98, (“Standard Test Method for Sulfur in Petroleum Products by Wavelength Disperse X-Ray Fluorescence Spectrometry”), 1998.

504.11 American Society of Testing Materials, ASTM Method #D1266-98, (“Standard Test Method for Sulfur in Petroleum Products - Lamp Method”), 1998.

504.12 American Society of Testing Materials, ~~ASTM~~AST Method #D2880-~~0071~~, ~~78, or 96,~~ (“Standard Specification for Gas Turbine Fuel Oils”), ~~1971,~~ ~~1978, or 1996.~~2000.

504.13 American Society of Testing Materials, ASTM Method #D4294-~~980 or 98,~~ (“Standard Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry~~scopy~~”), ~~1990 or 1998.~~

504.14 Standard Methods for the Examination of Water and Wastewater, (“Dissolved Solids Dried at 180°C, Method #2540C”), American Public Health Association, 19th edition, 1995, ~~or ASTM Method 2510B.~~